

State of Wisconsin
Broadband Technology Opportunities Program (BTOP)
Grant Application
Submitted August 19, 2009

Building the Future:
Wisconsin's Education and Library Broadband Infrastructure Project

Project Description

The State of Wisconsin, Department of Administration, will install optical fiber to key underserved community anchor institutions: 82 education facilities and 385 libraries. This effort will enhance the existing BadgerNet Converged Network (BCN) serving over 2,400 public sector institutions and will further facilitate broadband access for residential and business customers in the targeted communities.

Project Executive Summary

a) Opportunity the proposed system seeks to address.

The State of Wisconsin BTOP grant application provides a unique opportunity to address the critical broadband needs of our key community anchor institutions. Specifically, we are seeking funds to install fiber broadband technology to 467 sites. These are:

- 74 of the state's 426 school districts that do not have fiber
- 385 of the state's 470 public libraries that do not have fiber, and
- 8 community colleges.

We believe that fiber is the best solution to address the current and long-term broadband needs of these community anchor institutions.

Eighty-one percent of these institutions are in rural locations where telecommunication providers are not likely to provision fiber in the near future due to lack of a sufficient market to justify the cost. Therefore installing fiber would be impossible but for a timely infusion of Federal stimulus funds. Because the telecommunication industry uses the same infrastructure for their residential and business customers, our proposal to bring fiber to these sites in predominantly rural communities will further the broadband purpose of the federal economic stimulus by simultaneously bringing affordable broadband access to residential and business customers in the entire community. Our application also includes eight colleges (two of which are tribal colleges) for a total of 467 sites. Our narrative focuses on the schools and libraries which represent 98% of our sites.

The community anchor institutions in this proposal now receive broadband access over a limited copper infrastructure via our statewide BadgerNet Converged Network (BCN). (Many BadgerNet customers already have fiber. We are addressing the schools and libraries that do

not.) BCN is provided under a state contract with AT&T as the prime contractor partnering with the Wisconsin BadgerNet Access Alliance (WBAA), a partnership of independent telecommunication companies. BCN provides broadband connectivity to 2,400 state and local government agencies, higher education, health care facilities, K-12 schools and public libraries. This “converged” network supports voice, video and data services. BadgerNet represents a very successful public-private partnership. According to AT&T it is the largest state network of its type in the nation.

Wisconsin has been forward thinking and diligent in developing its broadband networking infrastructure. When the business and technical specifications were developed for the BCN in 2003, Governor Doyle required that: (1) economic development objectives be incorporated into the network, and (2) the State of Wisconsin be the anchor tenant. This direction is articulated in the *Wisconsin Educational Network Business Case*, a comprehensive 91 page document that provided the roadmap for future development of the BCN. Two of the key conclusions reached in the Business Case are:

1. Wisconsin needs a standards-based, affordable network with adequate bandwidth that can support multiple applications and provide universal connectivity to accommodate increasing demand.
2. Equity of access for all students regardless of age, geography or economic status is needed. Wisconsin has made a good start in its goal to provide equity to all students, but it must continue forward to complete that mission.

The last sentence above is critical and bears repeating: “Wisconsin has made a good start in its goal to provide equity to all students, but it must continue forward or that mission is not complete.” Through state and local initiatives the State of Wisconsin has managed to bring fiber connectivity to many school districts. However, until we can ensure that the students and library patrons in *all* communities in Wisconsin have equitable access, a large part of our state is in danger of being left behind simply because of where people live.

b) Description of the proposed funded service areas.

Our statewide application proposes to serve 74 school districts, 385 libraries and eight colleges in a total of over 380 mostly rural Wisconsin communities. There will be at least one site in each of the state’s 72 counties. (See Question #14 for more information.)

c) Number of households and businesses passed.

Because this grant application is targeted toward anchor institutions, it focuses on completing Wisconsin’s commitment to providing adequate broadband access to these institutions. However, just within the specific census blocks in which the schools, libraries and colleges are located, we have identified over 10,000 households. Many of these households will benefit from fiber that is being installed in their neighborhood to reach a school or library.

d) Number of community anchor institutions, public safety entities, and critical community organizations passed and/or involved with project.

This project will directly serve 467 schools, libraries and colleges, with each of the communities where they are located likewise benefiting from this project. In these communities other municipal agencies will be able to use the fiber infrastructure. For example, over 85% of sites are within 5 miles of a police or fire department.

e) Proposed services and applications.

All our schools and libraries have free (state funded) web access to over 10,000 full-text magazines and newspapers and high quality videos on scores of subjects like personal finance and health care. This rich information resource requires substantial bandwidth. Wisconsin is also a leader in offering interactive distance education courses, but school districts without fiber cannot take full advantage of this service. (See Question #11 for more information.)

f) Non-discrimination and interconnection obligations.

BCN is an overlay network provided by more than 70 service providers with AT&T as the prime contractor. Users such as schools and libraries connect to a BCN Internet Service Provider (ISP). BCN configures each Internet Transport Service with a “Best Effort” quality of service marking. Once a packet enters the network it is automatically marked to 0, so the network does not, and cannot, differentiate any ISP traffic and is thus “neutral.” (See Question #22 for more information.)

g) Type of broadband system that will be deployed.

The BadgerNet Converged Network (BCN) is an Internet Protocol/Multi-Protocol Label Switching (IP/MPLS) broadband network supporting voice, data and video with over 2,400 end points covering the entire state. Of these end points, over 800 are schools, libraries and colleges and many of them already have fiber. Our project is targeted at the 467 that still do not. (See Questions #28-30 for more information.)

h) Applicant qualifications demonstrating ability to implement and operate a broadband infrastructure.

The State of Wisconsin, in cooperation with our prime contractor AT&T and their telecommunication partners, can readily implement and operate the proposed expansion of the BCN broadband network as demonstrated by our success with the current network. Since 2005, the State has been using existing contracts and service level agreements for network governance, management and other services. In 2005 the State, working with the AT&T consortium, successfully completed the implementation of the new BCN IP/MPLS broadband network involving the conversion of 1,770 endpoints in all 72 Wisconsin counties supporting over 2,400 end users. (See Question #38 for more information.)

i) Overall infrastructure cost of the broadband system.

The projected cost of the program is approximately \$28.7 million to provide fiber broadband connectivity to 467 additional schools, libraries and colleges in over 380 communities. (See Questions #44 - 45 for more information.)

j) Overall expected subscriber projections for the project.

Because this grant application is targeted at community anchor institutions, it emphasizes completing Wisconsin's commitment to providing high-speed broadband access to schools and libraries. This project will expand the fiber infrastructure serving the state to over 380 communities which represent a significant portion of the state's population, especially outside the larger urban areas.

k) Number of jobs estimated to be created or saved.

This project will provide over 150 FTE contract jobs to lay and install the fiber connections. Additionally, by bringing fiber to over 380 more communities, this project will expand residential broadband use and create economic opportunities that currently do not exist. While difficult to measure, this will certainly result in job creation. In addition, the project will invest over \$10.7 million in telecommunications equipment from American firms.

In Summary:

Our project addresses the critical current and future bandwidth needs of our schools, libraries and colleges. The expanded network will also provide a very important communication link into all communities to support response to emergency situations.

- We have completed the engineering to bring fiber to all the school districts and libraries that now do not have it.
- We have completed the budget and all the logistics.
- We have proposed an aggressive timeline to make all this happen within 16 months of grant approval.
- We have worked for months on this project in close partnership with AT&T and its telecommunication partner companies.

The State of Wisconsin project is shovel-ready. When our application is approved, we are ready to start implementation.